

ABSTRACT

A hover aircraft employs an air impeller engine having an air channel duct and a rotor with outer ends of its blades fixed to an annular impeller disk that is driven by magnetic induction elements arrayed in the air channel duct. The air-impeller engine is arranged vertically in the aircraft frame to provide vertical thrust for vertical takeoff and landing. Preferably, the air-impeller engine employs dual, coaxial, contra-rotating rotors for increased thrust and gyroscopic stability. An air vane assembly directs a portion of the air thrust output at a desired angle to provide a horizontal thrust component for flight maneuvering or translation movement. The aircraft can employ a single engine in an annular fuselage, two engines on a longitudinal fuselage chassis, three engines in a triangular arrangement for forward flight stability, or other multiple engine arrangements in a symmetric, balanced configuration. Other flight control mechanisms may be employed, including side winglets, an overhead wing, and/or air rudders or flaps. An integrated flight control system can be used to operate the various flight control mechanisms. Electric power is supplied to the magnetic induction drives by high-capacity lightweight batteries or fuel cells. The hover aircraft is especially well suited for applications requiring VTOL deployment, hover operation for quiet surveillance, maneuvering in close air spaces, and long duration flights for continuous surveillance of ground targets and important facilities requiring constant monitoring.